**Expert Report of Hung Cheung, MD, MPH, FACOEM**

May 6, 2011

**Re:**

**A. S. K., a minor by next friend, SUSAN LEIGH KRISTENSEN, and K. V. K., a minor by next friend, SUSAN LEIGH KRISTENSEN, Plaintiffs, v. WILLIAM DAVID SPOTNITZ and DENISE CONSTANCE SCHAIN, Defendants.**

This summary report has been prepared as a synopsis of my opinions regarding my findings on the Independent Medical Evaluation on the above examinees, review of the available medical records, review of documents including depositions and pictures made available by your office (see below for complete list of documents reviewed), and review of the relevant literature.

**Summary of Key Points:**

1. The Kristensens moved into 560 Bloomfield, Charlottesville, Virginia in a house sitting or caretaker arrangement and resided at 560 Bloomfield from August 2000 until approximately April 2002.
2. Mr. Kristensen, the father of claimants, A█ Kristensen and K█ Kristensen, has a history of multiple environmental allergies and respiratory conditions prior to moving into the 560 Bloomfield property.
3. A█ Kristensen has history consistent with multiple environmental allergies along with a diagnosis of eczema. He may be classified as atopic. Atopy is a genetic predisposition toward the development of immediate hypersensitivity IgE-mediated allergic reactions against common environmental antigens (atopic allergy), most commonly manifested as allergic rhinitis but also as bronchial asthma, atopic dermatitis, or food allergy.
4. There is family history significant of depression, suicides, schizophrenia, sociopaths, alcoholism.
5. There are significant dysfunctional family dynamics in the Kristensen household. Claimant, A█ Kristensen has reportedly been physically abused by his father. This was reportedly witnessed by claimant, K█ Kristensen, A█'s sister. The (A█'s) father has reportedly also had altercations with the police. There are notes that indicate Ms. Kristensen, the mother of the claimants, is concerned that Mr. Kristensen may "kill" her and that he would steal the children. There is also concern that Mr. Kristensen may jeopardize mother's mold lawsuit. The claimants' father, Mr. Kristensen has been described as out of control and a restraining order or protective order has reportedly been issued.

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6. There are significant behavioral issues with the claimants and their father, including oppositional behavior, boundary issues and handling of foods, e.g., hiding foods and chewing foods and spitting them out.
7. Per Ms. Kristensen, A█ Kristensen has history significant for high fevers and vomiting "several times a year." At one of these episodes, A█ was admitted to University of Virginia for one week where he was diagnosed with autoimmune disease of unknown etiology. He was initially treated with steroids for "weeks," and that he continues to be placed on steroids once a year for fever and vomiting. Per A█'s records, he has had recurrent periodic fevers repeatedly that have been attributed to bacterial and viral causes, including fifth's disease and Coxsackie viruses, etc. Hospital admissions noted history of orchitis, gastritis and other polyserositis type complaints. A diagnosis of relapsing or Periodic Fever Syndrome, a hereditary condition, is noted.
8. I have reviewed the reports by Dr. Vance and Dr. Vilseck as well as declarations or summary testimonies noted in the declarations by Dr. Elizabeth Frye and Dr. Gary Rakes. I strongly disagree with them. Their opinions are not supported by the scientific literature nor the case specific details that would support any level of causation in the development of any conditions related to the house at 560 Bloomfield, Charlottesville, Virginia. Their causation methodology is flawed and not generally accepted. Their conclusions are not scientifically supported and not reliable. The case specific details and the body of science related to indoor air quality contradicts their assertions. Furthermore, any recommendations to discard the family's possessions en bulk are unsupported and not consistent with the established body of science.
9. It is my opinion to a reasonable degree of medical probability that K█ Kristensen did not develop any medical conditions related to the alleged mold or microbial volatile organic compound (MVOC) exposure at 560 Bloomfield residence as opined by Dr. Vance, Dr. Vilseck, Dr. Frye and Dr. Rakes.
10. It is my opinion to a reasonable degree of medical probability that A█ Kristensen did not develop any medical conditions related to the alleged mold or MVOC exposure at 560 Bloomfield residence as opined by Dr. Vance, Dr. Vilseck, Dr. Frye and Dr. Rakes.

My opinions are based on my professional qualifications, background, experience, (curriculum vitae attached in Appendix I) relevant scientific and medical literature (including but not limited to reliance documents listed in the reference section, documents I reviewed in this matter (listed in documents reviewed section of this report), the IME's for A█ and K█, and the fax and data all of which are set forth in the following sections.

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**QUALIFICATIONS AND PROFESSIONAL BACKGROUND:**

I specialize in the area of environmental and occupational medicine, and have done so for over eighteen years. Environmental medicine is a scientific discipline dealing with the prevention, medical surveillance, evaluation, diagnosis, treatment and causation assessment of individuals exposed to potentially harmful agents, often in the environment of those individuals' workplaces, homes or community. In my work in environmental medicine, I serve as both a physician and scientist.

I received post-graduate training in Internal Medicine and in Occupational Medicine. I have a Medical Degree from the University of Maryland, a Masters in Public Health, with a major in Environmental Science, from Johns Hopkins Bloomberg School of Hygiene and Public Health, and a Bachelor of Science in Biology from Loyola College.

I am board certified in both Internal Medicine and Occupational Medicine. I am a Fellow of the American College of Occupational and Environmental Medicine. I have studied immunology, pulmonology and toxicology extensively, especially in my graduate education in Environmental Health Sciences, in my internal medicine training and in my occupational medicine fellowship. Additionally, I was one of two physicians appointed to the Maryland Governor's Task Force on Indoor Air Quality; where after 10 months' work, we produced "The Maryland State Task Force Report on Indoor Air Quality" which was presented to the Governor of Maryland and to the state legislators in July 2002. In matters related to indoor air quality, I have investigated hundreds of facilities and homes, have investigated thousands of indoor environmental quality complaints, have overseen health-based remediation planning, and have made hundreds of decisions about relocation or other protection of occupants as well as disposition of potentially contaminated products.

Furthermore, my education and training includes an extensive number of courses in epidemiology, biostatistics, research designs, research studies, systematic reviews (grading, evaluation, scoring and quality assessment, etc.) of research studies, conducting research, etc. I have been appointed by the American College of Occupational and Environmental Medicine to their evidence-based panel for the development of practice guidelines for respiratory medicine including conditions related to airway disease (occupational asthma, reactive airways disease, etc.) and interstitial lung disease. I have been trained to assess research studies for issues related to causation, treatment efficacy, diagnosis, differential diagnosis, etc.

I completed my medical residency in Primary Care, Internal Medicine at the University of Maryland Hospital, Baltimore, Maryland, in 1988. After completion of that residency, I started a career as a practicing physician, working primarily as an attending physician in the emergency room setting from 1988 through 1993. In 1991, I began focusing on a subspecialty in occupational medicine and environmental medicine while working part time as the Associate Director of Occupational Medicine at Express Care in Prince George's Hospital Center. From 1993 to 1995, I served as

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director of the Odenton Community Medical Center in Odenton, Maryland. In addition to continuing to see patients in this capacity, I was also responsible for overseeing the management of the center's occupational medicine and urgent care services. From 1995 to 1996, I advanced to the position of Director of the Potomac Occupational Health Group, a health care provider network, where I was responsible for managing the occupational, environmental and urgent health care facilities at two outpatient centers and one hospital based occupational and environmental health clinic at Prince George's Hospital Center.

From 1996 to 2000, I worked as the Regional Medical Director for Concentra Health Services, one of the largest private occupational and environmental health care providers in the nation. In this position, I continued to see patients as well as supervise medical services at seventeen (17) health care centers in the Delaware, Maryland and Virginia region. In particular, in this position I focused on providing medical care to patients with complex environmental and occupational illnesses and injuries. During this time, I also completed my occupational medicine post-graduate training at Thomas Jefferson University in Philadelphia.

From 2000 to 2003, I served as the State Medical Director for the State of Maryland. In this position I was responsible for providing medical advice on health issues relating to State of Maryland employees and state agencies. This included advising the State of Maryland on various environmental quality issues. As part of my responsibilities in this position, I coordinated investigations into many public health issues including the indoor environmental quality of buildings, examining State employees reporting of medical symptoms related to exposure to environmental agents and evacuation of contaminated facilities.

From 2001 to 2002, I also served on the Maryland Governor's Task Force on Indoor Air Quality, which studied the effect of workplace air quality on the health and productivity of workers in the state of Maryland. The Task Force's findings are detailed in a June 28, 2002 report to then Governor Parris Glendening.

From 2003 to the present, I have provided consultative services to companies and individuals with occupational and environmental illnesses or injuries. In this capacity, I have investigated hundreds of buildings, homes and plants. I have also served as the lead investigator for large federal government studies on epidemiology and health hazards at government facilities. These projects have included conducting environmental assessments at many large classified government installations, evaluating employees at those installations as well as generating reports detailing the team's findings from these investigations

I currently am a Fellow in the American College of Occupational and Environmental Medicine (ACOEM). The status of Fellow is one of the highest classifications of membership in ACOEM. Fellowship distinguishes and recognizes members of the College for their

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training, accomplishments, and experience in occupational and environmental medicine at the national, component, and local levels, as well as the member's academic and scientific contributions.

I previously served on the Baltimore City Healthy Homes Advisory Board and currently serve on the Greater Baltimore Asthma Alliance, having been invited by the Health Commissioner of Baltimore City. I am a faculty member of the Department of Environmental Health Sciences at The Johns Hopkins University Bloomberg School of Hygiene & Public Health. I have clinical privileges at Mercy Medical Center in Baltimore, Maryland, and at a Department of Defense (DOD) agency's Medical department. I evaluate and treat patients at both Mercy Medical Center and the DOD agency's Medical Center.

My curriculum vitae is appended to this report in Attachment I and a history of my trial and deposition testimony is included in Appendix 3. My standard rates for medical consultation are \$385 per hour and my rate for testimony and preparation for testimony is \$450 per hour.

**Documents Reviewed:**

A [REDACTED] Kristensen:

- Albemarie County Public Schools
- Atlantic Sports Rehabilitation
- Barbara Troncoso, PhD
- Blue Ridge Rehab Associates
- Cardinal Family Medical Center, Elizabeth Frye, MD
- Central Virginia Health Services, Southern Albemarle Family Practice
- Charlottesville Family Medicine
- Charlottesville Wellness Center Family Practice
- Commonwealth of Virginia
- Fluvanna Family Medicine
- Lon Shackelford, PhD
- Martha Jefferson Hospital
- Pediatric Associates of Charlottesville
- Piedmont Regional Educational Program
- Poehailos, Dupont & Associates
- Rainbow Babies & Children's Hospital
- Ritchie Shoemaker, MD
- Spectrum Therapy
- University of Virginia Health System
- University of Virginia, Kluge Children's Rehab
- Virginia Adult and Pediatric Allergy & Asthma

K Kristensen:

- Albemarle County School
- Charlottesville Wellness Center Family Practice
- Elizabeth Frye, MD
- Fluvanna Family Medicine
- Martha Jefferson Hospital
- Pediatric Associates of Charlottesville
- Piedmont Otolaryngology
- Poehailos, Dupont & Associates, PLC
- Rainbow Babies & Children's Hospital
- Ritchie Shoemaker, MD
- Southern Albemarle Family Practice
- University of Virginia Health System
- University of Virginia, Kluge Children's Rehab Center
- Virginia Adult and Pediatric Allergy & Asthma

**Reports, testimony, and related documents:**

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- Complaint
- Declaration of treating physician Gary Rakes
- Deposition of Joseph Richard Vilseck taken May 21, 2007
- Deposition of Ritchie Shumacher
- Deposition of Robert Leonard Vance taken on May 30, 2007
- Deposition of Stein Kristensen dated May 25, 2007
- Deposition of Susan Kristensen dated May 25, 2007
- Designation of plaintiff's medical literature dated April 6, 2011
- Expert designation of R. Leonard Vance, March 26, 2011
- Expert report of Joseph Vilseck, filed April 6, 2011
- Hand-drawn diagram of Bloomfield property
- Pictures of 560 Bloomfield Road, Charlottesville, VA property - Bates stamped 0153 through 0160 – front and back
- Plaintiff's expert designation of Dr. Leonard Vance filed April 1, 2011
- Report by J. Richard Vilseck dated April 6, 2011, with CV
- Report of Elizabeth Frye, dated May 6, 2002
- Scientific Laboratories Incorporated reports Bates stamped 0007 through 0024
- Summary testimony of treating physician, Elizabeth Frye.
- Testimony of JR Manhebanag on June 23, 2008
- Testimony of Leonard Vance June 25, 2008
- Trial testimony from Kristensen v. Spotnitz June 24, 2008 (portions of volumes ii, iii, iv, and v)

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**Independent Medical Evaluations:**

On April 11, 2011, A█ Kristensen and K█ Kristensen were evaluated at my office in Baltimore. The following history for both claimants were supplied mainly by Ms. Kristensen, Alec's and Kaia's mother.

**Re: A█ Kristensen**

**HISTORY AND INDICATION:**

Mr. A█ Kristensen was seen for an Independent Medical Evaluation at our Greene Tree office on April 11, 2011. He was brought to the IME Evaluation by his mother. The history is obtained mainly from his mother. Briefly Mr. Kristensen is an 11-year-old, right-handed individual who reports the following medical problem as a result of being exposed to water intrusion or mold within the home at 560 Bloomfield in Charlottesville, Virginia.

- Mold allergies.
- Asthma.
- Seizures.
- Rash.
- Fevers.
- Unknown autoimmune disease.
- Muscle sensory disorder in trunk muscles.

**HOME ENVIRONMENT:**

*According to Mrs. Kristensen, the family moved in to Bloomfield around August of 2000. Her ex-husband, A█ and Mrs. Kristensen were three occupants. The house is described as a single family home with split foyer. The bedrooms are on the second floor. There are three bedrooms and two and a half baths. The lower level is finished. She is unable to recall whether there is a septic system or whether there is incoming well water or city water. She reports that there is electric stove and gas heat. The home is approximately two miles from the University of Virginia. She describes the area as rural to suburban with some land and fields around but no working farms. She describes it as an upscale housing on two to three acres, although the Bloomfield house sat on a one acre lot that is wooded.*

*Per Mrs. Kristensen, three of five skylights leaked. She noticed water would drip during and after storms. She reports water stain on the ceiling. She did not notice the water stain when they moved in. "They had it painted." She reports the skylights leaked in the family/TV room, in upstairs master's bathroom and upstairs master bedroom. She reports that she noticed a musty odor but is unsure of the timing or whether it preexisted when the mold was not visible. Reportedly,*

one and one half years after moving into Bloomfield, a friend who worked for an HVAC company (heating, ventilation, air conditioning) "came over for dinner." The friend had "just finished course on mold. Noticed musty odor in house and mom and Alec were sick all the time. Suggested to have house tested." Reportedly, the house was tested soon thereafter and mold was found "more than one type. Told to leave house immediately by testing people. Left immediately and called (mom's) my dad. To stay with him." Reportedly, the family stayed with Mrs. Kristensen's father for approximately one month. The location of the house with 762, Woodlands Road in Charlottesville. She did return to the house in April of 2002 "to remove belongings. Wore respirators, protective clothing on and change of clothes. Rented a trash container, took to dump."

Reportedly, after staying with Mrs. Kristensen's father, they moved to Summer Chase Court in Charlottesville, Virginia for approximately six months. She described this as a brand new town house with no leaks nor mold. She reports using a gas stove at this property. During this time, the family also had a house built in the Forest Lake Community. It is a single family home with two floors using city water and sewage. There is central HVAC with electric heat and electric stove. She is not aware of any mold there. There was one water leak which occurred after a hurricane that the "builder fixed next day." They lived at this property for two to two and a half years then "decided to consolidate debt and timing the boom in real estate market" and move to a new location. She denies any problems related to indoor air quality or mold in this house.

They next moved to 3115 Morewood Lane in Charlottesville, Virginia. She describes this as a new single family home, where they lived from 2005 to 2010. She describes this as three floors on slab. No leaks, molds, or other problems noted. This property was "more rural." The house used electric heat and stove. The water and sewage were also from the city. This property was foreclosed secondary to her ex-husband not paying the mortgage, "was going through divorce." She describes the Morewood Lane property as more rural; otherwise, all the other neighborhoods and communities were about the same. The family next moved to 1027 Carrington Place in Charlottesville, Virginia. This is a town house approximately three years old. They stayed at this property for one and one half years, and relocated secondary to continued increases in rent. She reports no leaks, mold, nor indoor air qualities within this property. The stove was gas and used a heat pump. Next property is 501 West Beverly Street in Staunton, Virginia. This is a single family home of which the family, without the ex-husband, rents the top two floors. This property is close to Mrs. Kristensen's mother who is also separated from her father. She reports that this is in the town of Staunton and denies any leaks or molds and reports that the house has a gas stove and gas heater.

**According to Mrs. Kristensen's recounting of A█'s medical history, A█ "was allergic to egg but not sure, he grew out of them." She is unable to recall the type**

of allergic reaction which A█ experiences with eggs. She denies that he has a history of seasonal allergies, and reports that he has had negative allergy skin testing and blood work for pollen. According to Mrs. Kristensen, while living at the Bloomfield home "A█ was having fevers, rashes and colds and, vomiting while living in Bloomfield." She is unable to recall the frequency of such occurrences and finally describes it as "somewhat frequent." He was seen by his pediatrician and later referred to University of Virginia for allergy blood testing and allergy skin testing. According to Mrs. Kristensen, he is allergic to molds "various molds." However, she did admit that the testing occurred after the family had left the Bloomfield property. According to Mrs. Kristensen, A█'s symptoms continued for approximately one season after leaving the house, although she does admit to rash and fevers continuing past one season. She is unable to recall the treatment modalities prescribed at University of Virginia. She does report that approximately one month after moving out of the Bloomfield property, A█ was evaluated "for fever, rash, possible allergies, possible pulmonary issues, colds." He was treated with oral medications and inhalation asthma medications. Reportedly, the inhalers help "meds help with asthma and breathing problems." However, Mrs. Kristensen reports that he continues to have high fevers and vomiting "several times a year." At one of these episodes, A█ was admitted to University of Virginia for one week where he was diagnosed with autoimmune disease of unknown etiology. He was initially treated with steroids for "weeks," and that he continues to be placed on steroids once a year for fever and vomiting.

In reference to his seizures, Mrs. Kristensen is unable to recall the timing or the occurrence of such. "Noticed them while living in Forest Lake. Stare off into space." He was diagnosed with absent seizures. EEG and MRIs were performed and treatment was prescribed. However, reportedly, Mrs. Kristensen's since ex-husband, A█'s father, did not agree with the treatment. A█'s last seizure was in November 2010 and the one prior to that was in the summer of 2010. Alec is still not on any treatment for such. He is followed by his pediatrician, Dr. Reynolds in Charlottesville, Virginia as well as a neurologist at University of Virginia.

Mrs. Kristensen reports that A█ has a history of muscle sensory disorder found during a routine checkup. Reportedly, the pediatrician noticed Alec was slumping forward. He was evaluated later by a physical therapist at University of Virginia who reportedly tested him in exercise and balance tested A█. According to Mrs. Kristensen, he was diagnosed with muscular sensory disorder. He received physical therapy through the school system, two times a week which ended in first grade. He received total of two and one half years treatment while at the school at Albemarle County School System. "Now does not meet threshold for school assistance." He reportedly has no problems with this condition with the exception that he may have a hard time running "slouches, hard time breathing."

*Mrs. Kristensen describes A█'s rash as eczema. She also reports no past medical history before moving to Bloomfield.*

*According to Mrs. Kristensen, A█'s last asthma attack was in December of 2010 secondary to a "bad cold, needed inhalers, two times per day for five days." She did notify her pediatrician of the attack but was not seen by the pediatrician. Mrs. Kristensen reports that Alec continues to have eczema, rash and that his last seizure was in November of 2010. A█'s last fever and vomiting episode was in the summer 2010 that required treatment with steroids, "has own meds."*

#### **SOCIAL HISTORY:**

A█ is in the fifth grade. He enjoys video games but reports that he does not play sports. He does play outside, although there are no swings or playground surrounding the area according to A█. He has gone fishing with his grandfather but does not go hunting nor camping.

*There are no pets in the household, although there was a German Shepherd for two weeks when they lived in Bloomfield residence. Reportedly, the German Shepherd would not eat nor go into the house and was eventually returned to the breeder. They did have a cat for six months while at Bloomfield and reportedly, A█ suffered scratches from the cat and "ex got rid of it." According to A█'s sister, their father may have been also allergic to the cat. Reportedly, no one smokes at home, and so there is no environmental tobacco smoke exposure. Mother is not employed. There is a history of physical abuse which escalated to the point where Child Protective Services were involved. Reportedly there is a protective order for A█ and A█'s mother against A█'s father who was witnessed to physically abuse A█. A█'s sister, K█ reportedly witnessed this. "Ex will not admit to this or when it first started even with photos. Police are involved." A█ is seen by a therapist and a psychiatrist. There is a five-year-old brother, E█ at home. He reportedly suffers from croup and has a bone cyst in the left arm. There is no history of asthma nor allergies.*

#### **FAMILY HISTORY:**

Is positive for a possible allergy to cats.

*There is no history of asthma. According to Mrs. Kristensen, she herself does not have any past medical history, unrelated to the Bloomfield property. The maternal grandmother has a history of allergies to eye makeup. The maternal great grandfather has a history of possible asthma and black lung disease. The maternal great grandmother has a history of heart problems, coronary artery disease, and heart attacks.*

#### **RECREATIONAL ACTIVITIES AND HOUSEHOLD CHORES:**

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According to A█ and Mrs. Kristensen, he is able to participate in gym and able to run and "whenever they want us to do, I can't remember." Reportedly, he is able to do everything; however, may be slightly slower on running.

#### **PHYSICAL EXAM:**

On exam, A█ is a well-developed, well-nourished young male in no acute distress. He is able to walk without any difficulties. There were no obvious gait disturbances nor balance difficulties. Head exam was normocephalic and atraumatic with normal TMs and ear canals. There was moderate congestion in the right nasal passage versus the left. Throat was within normal limits. There were shoddy, soft, mobile lymph nodes in the posterior cervical distribution. Chest was clear to auscultation with no evidence of wheezing, rhonchi, nor rales. There was no evidence of wheezing on forced expiratory movements. Extremities showed no cyanosis, clubbing, nor edema.

#### **MISCELLANEOUS:**

*According to Mrs. Kristensen, A█ is up-to-date on his shots. There are no limitations, nor accommodations needed at school or provided at school.*

Re: K█ Kristensen

#### **HISTORY AND INDICATION:**

Ms. K█ Kristensen was seen for an independent medical evaluation on April 11, 2011 at my Greene Tree Medical office. The history was obtained mainly from Mrs. Kristensen, K█'s mother as well as from K█.

Briefly, she is a 9-year-old, right-handed Caucasian female, who is brought in for evaluation of asthma and allergies reportedly due to mold exposure.

*According to Mrs. Kristensen's account of K█'s history, K█ was born at the Bloomfield property which reportedly experienced water intrusion from skylights and mold amplification.*

#### **HOME ENVIRONMENT:**

*According to Mrs. Kristensen recounting of K█'s medical history, K█ would experience fever and rash, wheezing and possible croup-like symptoms. She was seen by her pediatrician who reportedly referred her to University of Virginia for allergy skin testing. She was reportedly found to be allergic to molds and cockroach. She is unable to recall treatment, although reportedly K█ was provided inhalers. She was seen along with her brother, A█, one month after*

leaving the Bloomfield property. According to Mrs. Kristensen, K█████ was diagnosed with asthma and allergies related to mold. She was described by her mom, Mrs. Kristensen as "relatively healthy, last asthma December 2009." K█████ does report a history of allergies with "stuffy nose" in the spring and in the fall. No treatment is required.

She is currently in the fourth grade, and she is able to participate in all activities including running, baseball and dance. She enjoys reading, drawing, designing clothes, sewing with her maternal grandmother, and playing outside as well as playing with her five-year-old brother. She enjoys fishing and camping and has camped with her grandfather in the Shenandoah National Park. There is no yardwork performed at the property that they currently reside, as this is a rental property and various yard maintenance activities are provided. Academically, she does well. K█████ reports that her grades are A's and B's.

She is currently not on any medication and she does not have any food allergies.

#### REVIEW OF SYSTEMS:

*On review of systems per Mrs. Kristensen, she is unable to recall other symptoms. K█████ is up to date on her shots and is provided no accommodations and has no limitations at school. Mrs. Kristensen stated that K█████ and her brother, A█████, were seen around the 2004 to 2005 timeframe with follow-ups roughly every six months until approximately two years ago, during which time they were reportedly treated with cholestyramine, a cholesterol lowering medication. According to Mrs. Kristensen, both A█████ and K█████ were diagnosed with mold related illness.*

#### EXAMINATION:

On exam, K█████ is an animated, bubbly female child in no acute distress. She appears to enjoy various activities and meeting people. Head exam is normocephalic and atraumatic with anicteric sclerae. Ear, nose and throat exam was within normal limits with the exception of slight congestion in the nasal turbinates. Examination of the ears reveals a 0.5 cm fluctuant growth at the tragal region just inferior to the ear cartilage. (Mrs. Kristensen was advised that this must be addressed as an urgent matter as it may infect the cartilage causing significant damage if it should spread to the cartilage or other regions.) Neck was supple with tiny shoddy posterior cervical lymph nodes. Chest was clear to auscultation with no evidence of rhonchi and wheezes. No rales. There was no evidence of wheezing on forced expiratory maneuvers. Abdomen was soft, non-tender. Heart was regular rate and rhythm. Extremities show no cyanosis, clubbing, nor edema. Her gait and her ambulation were within normal limits with no evidence of balance difficulties.

#### Review of Facts and Data:

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To follow is a brief discussion of mold health Effects:

According to the Institute of Medicine report on Damp Indoor Space and Health; National Academy of Science 2004: US Census Bureau's 2003 statistics: There are over 119 million housing units in the USA, and 4.7 million commercial buildings. Nearly all will experience leaks, flooding, or other excessive indoor dampness at some time.

Molds (fungi that typically grow on organic matter) and other fungi are ubiquitous in the environment. Typically, outdoor concentrations of most molds and fungi are higher than indoor concentrations, unless there is a local source of mold growth within the structure. Molds and fungi grow in areas that contain favorable conditions, notably moisture, oxygen, light, and a suitable substrate that varies according to the organism.

Molds have been around since the beginning of time. Molds are the most typical form of fungi found on earth, comprising a very large percentage, approximately 25%, of the earth's biomass. Other fungi include yeast and mushrooms. Molds are ubiquitous on our planet and play a vital role in the earth's ecology by decomposing organic substances necessary for sustaining plants and animal life. Molds reproduce via spores. All that most molds need to germinate and grow is a readily available food source, water and time. Molds are incredibly resilient. The spores are able to travel through the air, capable of resisting dry, adverse environmental conditions, and hence capable of surviving a long time. Aside from their essential role in aerobic decomposition, fungi are used in foods such as cheese, soy sauce and wine. At least 120 important pharmaceutical agents have been derived from fungi including penicillin, cyclosporin, ergotamine and chemotherapeutic drugs.

Floods, leaking pipes, leaking windows, and leaking roofs are all potential sources of moisture that can lead to mold amplification. Prolonged increased ambient humidity, e.g., inadequate ventilation, inadequate conditioning of air, improper drying of flooded areas, etc, can also lead to mold growth. Lifestyle choices such as overpopulating a residence, keeping a house closed up without running A/C or a dehumidifier, a hot tub inside the house without an adequate exhaust, the presence of multiple indoor houseplants and poor housekeeping habits can also lead to mold growth.

In a well constructed home without water contamination, the levels of airborne indoor fungi generally are a reflection of outdoor sources. Indoor sources such as plants, pets, and molds carried on footwear and clothing can also contribute to indoor levels. There is even a known relationship between the number of children and the amount of mold. Thoroughness of house cleaning and the presence of sink traps such as carpeting can also affect these levels. Mold is everywhere. Every piece of lumber, plywood, pressed wood, gypsum board, and other materials that are used in construction is populated from the onset with mold. This does not pose a problem unless a source of moisture facilitates proliferation of the dormant spores. Ambient concentrations vary widely by geographic location and can vary significantly depending on the seasons, temperature changes, humidity, wind, and time of day. Mold counts as high as over 50,000 spores/M<sup>3</sup> (cubic meter of air) and over 555,000 spores/M<sup>3</sup> have been noted in the

outdoor environments of St. Louis, Missouri and Santa Barbara, California respectively. As a result, outdoor molds can be a source of indoor mold as these microscopic spores and mold fragments can enter a home or a building in many ways depending on prevailing wind and climactic conditions: Fresh air intake via ventilation units, movement through gaps in the building structure or open doors and windows, transport on practically all materials brought into a building, or carried on coats of humans and pets.

Natural environmental variation of mold spores and culturable mold in air samples is greater than the differences between damp and non-complaint indoor air spaces. While causation can only be determined through medical evaluation, following are examples of the natural variability and comparability in occupied spaces provide some prospective. Studies of air concentration differences revealed an average exposure concentration of 120 million spores/M<sup>3</sup> in farms with no complaints. Indoor concentrations in spawning sheds on mushroom farms have been reported to be as high as 100,000spores/M<sup>3</sup> with no complaints. Commercial composting activities have yielded airborne concentrations of mold greater than 8 million spores/ M<sup>3</sup> with no complaints. An evaluation of 820 non-complaint homes in the U.S. yielded average indoor mold levels of 1252 Colony Forming Units per cubic meter (CFU/M<sup>3</sup>) and average outdoor levels of 1,524 CFU/M<sup>3</sup>. Similarly, in a U.S. study of non-complaint buildings documented the range of indoor and outdoor mold, toxigenic fungi, and Stachybotrys chartarum spore counts of 68- 2307 spores/M<sup>3</sup> and 400- 80,000 spores/M<sup>3</sup> respectively. Regarding Stachybotrys, the median air borne concentration was 12 CFU/ M3 (95% CI 12 to 118 CFU/ M3) in buildings where levels were above the limit of detection; these included 6% of 1717 buildings surveyed in this nationwide investigation which included 9619 indoor samples. Extrapolating from animal data on certain Stachybotrys mycotoxins, the equivalent air concentration necessary to produce the dose equivalent to the more sensitive study animals, mainly rats, mice and guinea pigs, is upwards of millions to 10 billion spores/ M3. These concentrations are improbable and inconsistent with reported spore concentrations.

Concerns about indoor environmental quality problems related to mold in the workplace have been increasing with heightened public awareness, primarily through the popular media. Although this may appear to be a recent problem, exposure to molds has occurred throughout history. The many health effects have been known for decades if not centuries. Even the Bible/ Old Testament refers to this issue (Leviticus). In fact, the types of mold found in buildings are not rare or even unique to the building environment. Molds survive by using plants and decaying organic matter for food. Molds are reproduced by releasing tiny spores that are carried by air currents to other locations. Molds are widely distributed in nature and human exposure to mold spores occurs commonly both indoors and outdoors, at home, at school, and at work. It is important to understand that no environment is completely free from mold spores, not even a surgical operating suite. Medically, a small percentage of people may experience symptoms such as mucus membrane irritation, runny nose and upper airway congestion when exposed to excessive mold growth in the building. Less common symptoms, such as breathing difficulties, may also occur. The type and severity of symptoms depends upon the type and extent of mold present, the extent of the individual's exposure, and the susceptibility of the individual (for example, whether they have preexisting allergies, asthma or whether they are

immunocompromised). In general, excessive exposure to mold may produce health problems by several mechanisms including: 1) allergy or hypersensitivity, 2) irritant effects, 3) infections, and rarely via 4) toxic effects. The specific health effects produced depend both on the nature and extent of the exposure, and the underlying health status of the exposed individual(s). For example, individuals with pre-existing allergies, or immune compromise, may be at increased risk from exposures to certain molds and fungi. Some molds have also been shown to produce toxins (termed mycotoxins) which have been shown to have significant health effects in animals when given in high doses.

### *Allergies*

In reference to allergies and respiratory symptoms, which are the main alleged conditions or symptoms in this case, ambient mold spores are widely distributed in nature, and an estimated up to 10% of the world's population is allergic to molds. Allergic effects of mold are manifested primarily as respiratory allergies in those who have allergies to specific mold species. These disorders include hay fever or upper respiratory allergies, asthma and, in very rare cases, hypersensitivity pneumonitis. Symptoms are generally mild and only occur at times of actual exposure. They are also equally likely to be caused by mold outdoors or many other aeroallergens: pollens, gasses, dogs, cats, dust mites, etc. Alternaria, an outdoor mold, is by far the most commonly linked to asthma and has been known to cause asthma attacks during storms when the molds are released or re-suspended. This asthma attack from outdoor mold phenomenon has been termed "thunderstorm-related" asthma. These allergic responses occur only in people who have allergies to specific species or agents.

### *Irritant effects of Mold Exposure*

The Occupational Health and Safety Administration defines an irritant as a material causing "a reversible inflammatory effect on living tissue by chemical action at the site of contact." Irritant effects are dose related, and the effects are transient, disappearing when the exposure has decreased or ceased. Molds produce a number of potentially irritating substances that can be divided into volatile organic compounds (VOCs) and particulates (e.g., spores, hyphae fragments, and their components). The threshold level of irritant response depends on the intrinsic properties of the specific material involved, the level plus length of exposure, and the innate sensitivity of the exposed tissues (e.g., the skin versus nasal mucosa). For the majority of the indoor odors, the olfaction or odor threshold significantly precedes the irritant levels. The irritant threshold may be 3 to 5 orders of magnitude higher than a human's ability to detect such odor (odor threshold). As such, this would be considered by many as a wide margin of safety. VOCs made by molds (MVOCs) can be responsible for their musty odor. MVOCs include a wide range of alcohols, ketones, aldehydes, esters, carboxylic acids, lactones, terpenes, sulfur and nitrogen compounds, and aliphatic and aromatic hydrocarbons. Although levels causing irritant effects have been established for many VOCs, MVOC levels measured in damp buildings are usually at a level so low (on the order of nanograms to micrograms per cubic meter) that exposure would not be expected to cause complaints of irritation in human subjects. There are other sources of VOCs indoors, therefore measurement of indoor airborne concentrations of MVOCs may not be specific to mold source(s). However, in studies where MVOC levels were

measured, the concentrations, including those that meet or exceed the odor threshold, were orders of magnitude lower than the concentrations that cause sensory irritation symptoms. While odors can be an early signal of microbial presence, these odors are detectable at levels tens or hundreds of times lower than the levels that induce sensory irritation. Therefore, perception of an MVOC odor, like the aroma when one unwraps sharp cheddar cheese or blue cheese, is not a sign of toxicity.

Theoretically, sensory irritation by MVOC's such as ethanol and others cited above may be perceived as temporary elicitation of burning, stinging, tingling, trickling, in the eyes, nose and throat areas. The effects of sensory irritants are transient and dissipate when exposure ends.

Airborne mycotoxin are generally non volatile. Therefore, their emissions rates in the indoor environment are generally de minimis and below the limit of detection. In research studies, when levels were measured, the mycotoxin concentrations were below one microgram per cubic meter, a level substantially below that found in our diet. (Araki et al 2009; Korpi et al 2009; Moularat et al 2008; Schleibinger et al 2005; Schuchardt and Kruse 2009). According to the American College of Medical Toxicology (ACMT), a person's largest source of mycotoxin is from our food source, e.g., harvest from mycotoxin contaminated grain. It is not from any alleged airborne mycotoxin cross contamination that may have settled onto our previously purchased food supplies, such as from alleged mold in the indoor environment. Such assertion is scientifically novel and not generally accepted in such a scenario as reported in the Kristensen case.

Mold particles (spores, hyphal fragments, and their structural components) are not volatile. It has been suggested that these structural mold compounds (particulates) cause inflammation through deposition on mucus membranes of their attached glucans and mannans. However, whether such effects occur clinically remains unproven. In fact, subjects exposed to airborne concentrations of between 215,000 and 1,460,000 mold spores/M<sup>3</sup> at work showed no differences in respiratory symptoms at work versus while on vacation nor was there evidence of increased inflammatory markers in their nasal lavage fluids related to their mold exposure at work. Thus mold particulates generally found indoors, even in damp buildings, are not likely to be irritating. Furthermore, the mold levels at 560 Bloomfield were orders of magnitude below found in the above noted studies where irritant symptoms were not reported. It should be emphasized that irritant effects involve the mucus membranes of the eyes and upper and lower respiratory tracts and are transient, so that symptoms or signs persisting weeks after exposure should not be ascribed to irritant exposure.

### *Infections*

Certain infectious mold disorders are observed in severely immunocompromised individuals, e.g., patients on immunosuppressant medications or those with immune deficiency syndrome. In such cases, mold exposure may lead to infection in the lungs, sinuses, or even systemic infections in the body. Such infections have not been observed in generally healthy individuals with exposure to mold in the indoor ambient air. In general, host factors, rather than environmental exposure, are the critical factor in the development of opportunistic mold

infection in immunocompromised individuals because exposure to potential fungal opportunistic pathogens (e.g., Aspergillus species) is ubiquitous in normal outdoor and indoor environments.

### *Toxic Effects*

The Fourth category of potential adverse health effects is mold toxin effects. Many fungi are capable of producing mycotoxins and their ubiquity would suggest that most people have some level of daily exposure to mycotoxins. Diet, and not airborne mold exposure, is the most important source of human exposure to mycotoxins. The vast majority of scientific data on the adverse health effects of mycotoxins is derived from their presence as natural and unavoidable contaminates of foods and beverages that are consumed as part of a healthy diet. Many dietary/food sources including meats, meat products, fruits, juices, grains, wine, dairy products, etc, have been known to contain mycotoxins. The Food and Drug Administration (FDA) has set mycotoxin limits on many of our food products, including peanut butter, animal feed, etc. There is considerable scientific debate about the potential for these molds to cause toxic effects in people in airborne concentrations typically seen in homes and office buildings; however, there is currently no conclusive evidence of a link between mycotoxin exposure and the indoor environment as it relates to human health. Dr. Page and Dr. Trout from National Institute of Occupational Safety and Health at the CDC concluded that "Review of the literature indicates that there is inadequate evidence to support the conclusion that exposure to mycotoxins in the indoor (non-industrial) environment is causally related to symptoms or illness among building occupants (2001)".

Many subsequent reports and articles have been published on health effects of mold and health effects of damp indoor environments by well respected scientific organizations, such as:

- 2002 - The American College of Occupational and Environmental Medicine (ACOEM);
- 2004 - The Institute of Medicine (IOM);
- 2006 - The American Academy of Allergy Asthma and Immunology (AAAAI);
- 2007 - American College of Medical Toxicology (ACMT).

These publications have not documented or supported the manifestation of toxic health effects from indoor mold exposures or damp indoor buildings.

While the body of scientific evidence may support allergic symptoms in someone with allergies to specific mold species, a careful individual causation analysis in this matter finds no evidence of case specific details to support the allegations that the alleged mold (or MVOC) caused the development of any medical conditions in Alec Kristensen or in Kaia Kristensen.

### **Causation:**

To follow is a discussion on the proper methodology in carrying out a causation analysis in identifying whether a factor is causally related to an individual's health condition or outcome. In general, causation assessment is typically performed in two major realms, epidemiologic versus

individual causal assessments. The epidemiologic based causal assessment (general causation) determines whether there is support, in the body of literature, that certain factors “can” cause a disease. It is used to evaluate whether a purported “risk factor” is truly a disease determinant rather than an associated factor in a study population. A disease determinant contributes or causes the disease outcome. On the other hand, an associated factor may just be a statistical association, spurious or otherwise. If the factor is causal, then elimination of the risk factor must result in fewer cases of the particular disease (Melhorn 2008).

Individual causation (specific causation) assessment determines whether the factor “did” cause the disease in a specific person. This assessment requires further knowledge of medicine, the art of differential diagnosis, medical, psychosocial, hereditary, environmental factors and whether there was dose sufficient which may contribute to the symptoms or condition. The following is adapted from National Institute for Occupational Safety and Health (NIOSH), a branch of the CDC, and modified by Glass, in determining relatedness (Melhorn 2008):

- a. Evidence of disease. What is the disease? Is the diagnosis correct? Does the evidence (e.g., history, physical examination findings, and results of diagnostics studies) support or fail to support the diagnosis? (this is the process of differential diagnosis which also includes ruling out other potential conditions that may explain the set of symptoms and findings)
- b. Epidemiologic data. What is the epidemiologic evidence for the disease or condition? Do the data support a relationship with the setting or factor of interest, e.g., workplace or particular agent?
- c. Evidence of exposure. What evidence, predominately objective, is there that the level of environmental exposure (frequency, intensity, and duration) could cause the disease?
- d. Other relevant factors. What other relevant factors are present in this case? Are there individual risk factors other than the environmental exposure of interest that could contribute to the development of the disease? For example, if the diagnosis is carpal tunnel syndrome, is the person pregnant, obese, diabetic or have a thyroid disorder?
- e. Validity of evidence. Are there confounding or conflicting data to suggest that the information obtained in the assessment is inconsistent versus accurate?
- f. Evaluation and conclusions. Do the data obtained in the preceding assessment support the presence of a related disease?

Furthermore, other scientific references generally accepted in the scientific community note that in analyzing individual case-specific causation, in general:

- when there is case-specific evidence that exposure to a toxic hazard that is a known cause of the cited medical disorder has occurred; this must include the presence of a source and pathway of exposure to the identified hazard.

- Biologic or environmental test data may quantify the intensity (e.g., airborne toxin concentration) and dose of exposure and assist an assessment whether or not adverse health effects occurred as a result of the exposure.
- If it is available, toxicological data may also allow characterization of the exposure intensity and dose at which adverse health effects are likely to occur.
- The order and timing of exposure and disease (onset and course, including latency of onset or incubation period, progression, or, after removal from exposure, resolution of symptoms and/or signs of a medical disorder) are consistent with a cause-effect relationship.

Plaintiff's expert, Dr. Vilseck, offers in his report, a non-valid and flawed causation methodology (pp 4-5 of his report). His causation methodology is not generally accepted by the pertinent scientific community and his conclusions are unreliable. Not only is his approach flawed, he also attributes symptoms of alleged exposure to MVOC's to an allergic mechanism. There is no scientific support for such an assertion that a person's response to MVOC's is allergy related. He also attributes symptoms to allergic mold response which are inconsistent with such a diagnosis. He fails to analyze factors such as timing, duration, exposure or dose in relationship to the various health triggering sources or agents when making his causation assessment. The sporadic nature of the manifestation of alleged allergy symptoms is not consistent with their allegations of a chronic and wide spread source or sources within the house. Dr. Vilseck misrepresents the literature and data including his own reliance documents. Highlighting his non scientific and non valid causation assessment approach, in his prior deposition in a lawsuit involving the 560 Bloomfield property, he provided anecdotal and unsupported claims of his general MVOC treatment experience, offering no objective details of the existence of any measurable MVOC. His environmental knowledge, environmental experience and his causation methodology can best be described as unsound and un-informed. As such, his conclusions are unreliable and not generally accepted in the relevant scientific community.

For the individual claimants in this matter, my conclusion that no allergic symptoms/ mechanism manifested as a result of any alleged mold exposure at 560 Bloomfield is based on factors which include the following points:

1. Dr. Vilseck, as one of his four mold-exposure causation factors for typical [mold] allergy, noted that "there is contemporaneous illness among all four family members in the same house at roughly the same time" as indication of mold allergy response. In fact, as any experienced environmental health specialist will tell you, when assessing an outbreak, if an allergic mechanism is involved, only few or sporadic cases are usually seen with exposures and only by those who have allergies to the specific agent. In this case, while A [ ] can be described as atopic, K [ ] is not. She does not demonstrate allergic diastheses. In such a scenario, an outbreak of upper respiratory complaints is more likely to be viral or simply a "cold."

2. When reviewing the claimants' histories, especially for A█, the alleged mold allergic responses are associated with fever. This is a significant error in differential diagnosis, one of the first steps in causation analysis. When treating hay fever or allergen related asthma, fever is not one of the expected signs and definitely not one of the initial signs. As such, it would be illogical to attribute any condition or illness that is accompanied by fever to mold allergies.
3. If the source(s) or agent(s) for the symptoms are due to a wide spread source or sources within the house as alleged, why would there be significant gaps (as demonstrated in the medical records) in symptoms manifestation? One would instead expect consistant symptoms during the period(s) of exposure. The existence of these significant gaps contradicts basic exposure response principle in environmental medicine.
4. The children's conditions associated with upper respiratory symptoms actually resolved without allergy medications. When and if treated, they were treated and eventually resolved with antibiotics. This would contradict any assertion of allergic mechanism to the noted symptoms.
5. Furthermore, contemporaneous biomarkers for allergies were negative or did not show signs of allergies when A█ was residing at 560 Bloomfield. For example, eosinophil, which are specific white blood cells that may indicate an allergic response were normal when A█ resided at 560 Bloomfield.
6. A█'s near contemporaneous allergy tests were negative for allergies to the specific indoor mold found. His allergy panels on May 8, 2002 and July 17, 2002, soon after the family relocated from 560 Bloomfield, were negative for Aspergillus and Penicillium or even Alternaria IgE's. The July 17, 2002 panel was positive for *Alternaria alternata* IgG which is in outdoor mold. *Alternaria alternata* is a well known and recognized trigger for asthma symptoms and attacks. Furthermore, the environmental testing performed did not reveal amplification of Alternaria indoors. Moreover, IgG is not associated with the asthma or allergic symptoms alleged in this case.
7. A█'s only allergy panel which demonstrated any positivity to *Penicillium*, despite repeated allergy testing, was on January 9, 2003, nearly nine months after the family relocated from 560 Bloomfield. At that time, Alec tested positive to *Penicillium chrysogenum*. Prior tests performed on 7/17/2002, approximately three months after the family relocated from 560 Bloomfield, for *Penicillium chrysogenum* biomarkers was negative. Furthermore, *Penicillium chrysogenum* was not found at 560 Bloomfield.
8. A█ presented with respiratory symptoms. He was treated with antibiotics and the symptoms eventually resolved. No allergy medications or treatments were prescribed. Somehow this was attributed to allergies. It would be illogical to believe that A█ presented with allergy symptoms, was not treated for allergy, and resolved with non-allergenic treatments and to then assume that his symptoms were produced as an allergenic response.
9. It is illogical to apply general statements such as that made by Vilseck, "*genus of molds as are be discussed which are consistent with damp and or spaces consistent all the literature on mold types known to cause serious human illness*" but not recognize that only certain species within each genus are associated with human illness.

10. If these had been allergic responses, it is illogical to assign cause to molds for which A [REDACTED] was not positive and ignore the common outdoor mold, *Alternaria alternata*, for which he tested positive.

In addition, temporality is very important in causation assessment. Dr. Vilseck fails to address the sporadic timing of A [REDACTED]'s symptoms and discrete episodes. Even if the potential symptoms triggers had been present at the Bloomfield property, that would not explain why A [REDACTED] manifested allergic diatheses (e.g., eczema, atopic dermatitis) before the family moved to 560 Bloomfield because:

- It would be illogical to believe that symptoms or diagnosis that presented prior to moving to the Bloomfield property could be causally related to 560 Bloomfield in their development.
- It would be illogical to believe that wide spread and consistent exposures can lead to only sporadic responses with large time gaps in between.

In response to Dr. Vance's assertions, there is no evidence of widespread fungal bloom or heavily contaminated areas within the Bloomfield property. Pictures of the property taken in spring 2002 show evidence of water stains but not the repeated flooding nor fungal blooms alleged. The reports are not methodologically sound and do not report extent of involvement, e.g., number of square feet of active mold growth in storeroom, closet, or ceiling adjacent skylights. While some discoloration in several isolated areas indicated localized and/ or history of water intrusion, there were no measurements of dampness or relative humidity in the house. While dark, unventilated storage spaces can potentially support fungal blooms and spreading of fungal growth from a major source of moisture, this pattern was not evident in the Kristensen home. No mold growth or water damage was evident on paper or textiles in either the storage room or first floor closet.

Even plaintiff expert, Dr. Robert Vance noted (testified), "if one were merely to look at the numbers alone, without taking into account the history of health problems that the Kristensen had, a person might reasonably conclude that this was normal background type of mold." [June 25, 2008: 36] Despite Dr. Vance's more recent report contradicting his prior sworn testimony, there was no evidence of widespread mold in the Bloomfield residence in 2002. The results of air sampling performed at 560 Bloomfield Rd. on April 15 and May 15, 2002, are more consistent with Dr. Vance's original testimony and are comparable to the levels of molds typically found in non-complaint residences.

Finally, despite his statement that exposure is a significant factor in evaluating causation, Dr. Vilseck does not address exposure dose or uncertainty associated with mixed exposures. First there is no evidence of fungal bloom or active mold growth or pathways and pressure differentials that could lead to exposures in the Bloomfield property. There is no evidence that the conditions for dampness, temperature, pH and availability of nutrients were met for the

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production of MVOCs, mycotoxins, or fungal blooms that would have resulted in the types of exposures referred to on page 85 of the WHO document which Dr. Vilseck cites.

“Possible toxic effects due to released non-microbial chemicals are not addressed, because experimental data on exposures to chemicals and damp buildings were missing or limited...Furthermore, the effects of microorganisms, microbial substances or dampness- related chemical compounds seen in experimental animals or cells often result from exposures that are orders of magnitude higher than the average doses that reached the human lungs under normal conditions and in indoor air.... Thus, experimental toxicological studies are essential for clarifying cellular mechanisms and identifying causative compounds, but the dosage must be considered in interpreting the findings and attempting extrapolation to the range of human exposures indoors.” p. 85 WHO 2009

The WHO also cites the Phalen et al 2006 study to identify that individuals with chronic obstructive pulmonary disease (which none of the Kristensens had) and exercising may inhale larger volumes of air and uneven distribution of particulates in their airways leading to increased exposure doses. However, these conditions do not apply to the Kristensen family. Additionally, the 2009 WHO review was based predominantly on studies published between 2000 and 2007. Since 2007, a number of publications report no significant differences VOCs between complaint (mold contaminated buildings) and non-complaint buildings. Similarly, recent studies have documented mycotoxins levels below the limit of detection even in mold contaminated buildings.

Dr. Vilseck confuses irritation with allergy symptoms. Responses to volatile organic chemicals (VOCs) from a constant source would have led to constant or near constant irritation which was not noted in contemporaneous records or reported in the Bloomfield property. Interestingly, the family reported no symptoms at the newly built home. The preponderance of literature indicates elevated levels of VOCs from new home construction, new paint, adhesives, construction material, carpeting and new furnishings. Similarly, the preponderance of literature indicates that the VOCs produced by molds in heavily contaminated indoor environments is not only a small fraction of the total VOCs present, it is significantly below levels which would produce irritant effects.

- It would be illogical to believe that any low level VOCs from mold, if present at all, would cause irritation at the Bloomfield property.
- Scientifically, based on the body of science, it would be illogical to believe that members of the family who reports irritation from MVOCs at the Bloomfield property, then have no symptoms in a newly constructed, newly painted home with new furnishings.

### **Conclusion:**

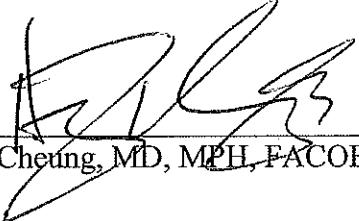
Based on the IME's I performed on A████ Kristensen and K████ Kristensen on April 11, 2011; based on review of the available documents and pictures; based on my education, training and experience; as well as the review of relevant literature, it is my opinion to a reasonable degree of

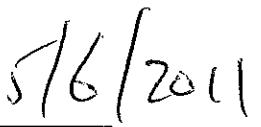
Expert Report of Hung Cheung, MD, MPH, FACP

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medical probability that the property at 560 Bloomfield did not cause the development of the alleged medical conditions in A████ Kristensen or K████ Kristensen as opined by Dr. Vance, Dr. Vilseck, Dr. Frye or Dr. Rakes.

The above opinions are made based upon review of the available records, and the IME's I performed. I reserve the right to add or adjust my opinion if other information should become available for my review.

  
Hung Cheung, MD, MPH, FACP

  
Date

Attachment I: curriculum vitae

Attachment II: testimony history

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APPENDIX I: Curriculum Vitae



Dr. CHEUNG / OEM ADVISOR, LLC.  
INTEGRATED OCCUPATIONAL, ENVIRONMENTAL AND PUBLIC HEALTH SOLUTIONS

## CURRICULUM VITAE

**Hung K. Cheung, M.D., M.P.H., F.A.C.O.E.M.**

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Baltimore, MD 21209

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E-mail: [hungc@drcheung-oemadvisor.com](mailto:hungc@drcheung-oemadvisor.com)

Date of Birth: December 23, 1958  
Citizenship: USA

### EDUCATION:

1996	M.P.H. Degree (Environmental Science) Johns Hopkins University Baltimore, Maryland
1985	M.D. University of Maryland Baltimore, Maryland
1981	B.S. Degree (Biology) Loyola College, Maryland (Alpha Sigma Nu/ Beta Beta Beta)

### PROFESSIONAL EXPERIENCE:

2009 – 2010	OPS Consultant Physician, Bureau of Environmental Public Health Medicine, Division of Environmental Health Florida Department of Health, State of Florida
2004 - Present	President Dr. Cheung/ OEM Advisor, LLC.

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**PROFESSIONAL EXPERIENCE:** (continued)

2004 - 2008	Chief Medical Officer Building Health Science
2003 - 2008	Vice President, Clinical Medicine International Center For Toxicology and Medicine (ICTM)
2000 -2003	Regional Medical Director - Concentra Medical Advisory Services <ul style="list-style-type: none"><li>• State Medical Director - Maryland agencies and employees</li><li>• Medical Advisor - Maryland Department of Transportation<ul style="list-style-type: none"><li>• Maryland Aviation Administration</li><li>• Mass Transit Administration</li><li>• State Highway Administration</li><li>• Maryland Transportation Authority</li><li>• Maryland Motor Vehicle Administration</li><li>• Maryland Port Administration</li></ul></li><li>• Medical Advisor - Baltimore County, Maryland</li></ul>
	Established Medical Advisory Department for large Concentra clients in Mid-Atlantic Region, specifically for management of Occupational Health Services/Preventive Health Services/Indoor Air Quality/Environmental Medicine consultations/ Investigations.
	Department - For strategic development/implementation of Integrated Health/Disability Management programs for large clients including the State of Maryland (65,000 state employees), Baltimore County, other municipalities and large corporations with over 20,000 employees. Other services include: drug free workplace program review/evaluation, medical review of substance abuse testing, workability evaluations, disability/retirement evaluations, fitness for duty exams, employment medicine services, second opinion evaluations/IMEs, absence management/sick call programs, ADA, STD/FMLA reviews, medicolegal consultations, delayed recovery cases, indoor (industrial & non-industrial) environmental quality/health management and evaluations, Environmental outbreak or disease cluster investigations, etc.

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**PROFESSIONAL EXPERIENCE:** (continued)

1996 - 2000      **Regional Medical Director**  
Concentra Medical Centers/Concentra Health Services  
Delaware/Maryland/Virginia/ Pennsylvania

Responsible for supervision of clinical services provided at 13 outpatient centers and four on-site facilities. 25%-30% direct patient care with focus on complex environmental medicine patients, second opinions, complex HR issues, fitness for duty, travel medicine and complex work injuries. Other duties include monthly medical professional education, training, compilation and dissemination of medical informational updates, Quality Assurance, development of new product line(s) to meet needs of client companies, development of protocols to meet various OSHA/ CDC/scientific standards (including BBP, OSHA respirator, etc.), budgeting, scheduling, marketing, NCQA credentialing of providers, chart audits, performance evaluations/tracking, best practice pattern identification with review of cases of outliers, outcomes research, assist and serve as resource for the cases of outliers, assist and serve as resource for the Case Management Division: IME, TCM/FCM, provider bill review, First Call (first report telephonic case management services).

1995 - 1996      **Director**  
Potomac Occupational Health Group (POHG)

Responsible for management of multiple Occupational and Urgent Care Medicine Centers. Contracted through CEMA. POGH is a member of the Dimensions Health Network (a PHO with over 450 physicians, three hospitals and two nursing homes) and is a provider of Occupational Medicine and Urgent Care for covered subscribers and companies.

1993 - 1995      **Director**  
Odenton Community Medical Center  
Odenton, Maryland

Contracted through CEMA. A sister corporation to CEMA, formed to expand the Occupational Medicine and Urgent Care Services. Overall management of all clinical and administrative services including credentialing, Managed Care contracting,

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**PROFESSIONAL EXPERIENCE:** (continued)

sales and marketing, supervision of human resource issues, Occupational and Environmental Medicine investigations.

Merged in 1995 with DHS to form Potomac Occupational Health Group Emergency Medical Services, Inc.

1993 - Present      Medical Review Officer  
Certified expert reviewer of forensic toxicological/drug/alcohol testing.

1991 - 1996      Associate Director of Occupational Medicine (part time position)  
Express Care/ Prince George's Hospital Center  
Cheverly, Maryland  
Part of CEMA's portfolio of services, including Occupational and Environmental Medicine for PG County Fire/ Rescue/ Police/ Badge employees, MNCPPC Police Force - Clinical position with administrative responsibilities including sales, marketing, Quality Assurance, education, updates, conferences.

1989 - 1994      Attending Physician  
Department of Emergency Medicine  
Prince George's Hospital Center  
Bowie Health Center  
Prince George's County, Maryland  
(Contracted with Chesapeake Emergency Medicine Associates (CEMA) with additional duties: education of students, residents and assistance with Quality Assurance Program)  
Part Time/Moonlighting Positions  
Leland Hospital Emergency Department, Riverside, Maryland  
St. Agnes Hospital Emergency Department, Baltimore, Maryland

1988 - 1989      Locum Tenens Physician – Montana, Massachusetts  
Primary Care/Internal Medicine  
Inpatient and Outpatient services  
CompHealth, Utah

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**MEDICAL LICENSURE:**

Delaware	California
Maryland	Pennsylvania
Nevada	Virginia
Montana – inactive	Massachusetts – inactive
Federal DEA# BC 0919045	MD. CDS# M26978

**PROFESSIONAL GRADUATE TRAINING:**

1997 - 1999	THOMAS JEFFERSON UNIVERSITY Occupational Medicine Program Jefferson Medical College Philadelphia, Pennsylvania
1985 - 1988	UNIVERSITY OF MARYLAND HOSPITAL Medical Resident Division of Primary Care/Department of Medicine Baltimore, Maryland

**QUALIFICATIONS:**

Diplomate Federal Licensure Examiners  
Board Certification - Internal Medicine - 1988  
Board Certification - Occupational & Environmental Medicine - 2002  
Advanced Cardiac Life Support Provider 1985-1995  
Advanced Trauma Life Support Provider 1989-1995  
American Association of Medical Review Officers

**PROFESSIONAL SOCIETIES:**

Fellow - American College of Occupational and Environmental Medicine (ACOEM)  
Treasurer - Maryland Chapter ACOEM 2000 to present  
Member - American College of Physicians  
Member - American Industrial Hygiene Association, Chesapeake Chapter  
Inactive, Fellow - American Academy of Disability Evaluating Physicians  
Inactive, Member - American College of Emergency Physicians  
Inactive, American College of Physician Executives  
BBB - Biological Honor Society  
Alpha Sigma Nu - National Jesuit Honor Society

**FACULTY APPOINTMENT:**

Faculty member, Department of Environmental Health Sciences,  
The Johns Hopkins University Bloomberg School of Hygiene & Public Health

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**CLINICAL APPOINTMENT:**

Active staff, Division of Occupational and Environmental Medicine,  
Mercy Medical Center, Baltimore, Maryland

**MISCELLANEOUS:**

1999	Named “ <b>1999 Physician of the Year</b> ” by Maryland Academy of Physician Assistants
2001 - 2002	Political Appointment - Maryland Governor’s Task Force on Indoor Air Quality and its Effects on Health & Worker Productivity. One of two physicians on this Task Force with final recommendations to the Governor and Legislature July 2002.
2002 - 2003	Member - State of Maryland Committee on Early Return to Work
2002	Medical Advisory Panel, PKIDS - a nonprofit organization for families who have children with infectious diseases. Additionally, have assisted with a grant proposal and volunteered as project manager for an overseas disease prevention program.
2003	Volunteer Examiner - ACOEM’s Corporate Health Achievement Award. Evaluator of Fortune 500 companies’ Corporate Health Programs and Practices for this annual prestigious award.
2006 – 2008	Lead investigator to a large Department of Defense epidemiology research study and selected health hazard evaluations involving over 7 thousand study participants and over 350 study areas in various large governmental facilities
2006 – Present	Atlantic Legal Foundation, Advisory Council member
2006 - Present	ACOEM appointment - Practice Guideline Panel member for development of the ACOEM evidence-based Respiratory Medicine Practice Guidelines
2007 - 2009	Baltimore City Health Department - Healthy Homes Advisory Group
2009 – Present	Baltimore City Health Department – Greater Baltimore Asthma Alliance

**APPENDIX II: Litigation testimony history as of May 6, 2011**

**DEPOSITION and TRIAL TESTIMONY OF HUNG CHEUNG, M.D., MPH., FACOEM**

YEAR	TYPE	CASE	COURT	CASE NUMBER
2005	Trial	Josephine Chesson, et al. vs. Montgomery Mutual Insurance Company	Circuit Court of Howard County, Maryland	13-C-03-056955
2006	Deposition	Stephen G. Wright, et al.. vs. Fort Lincoln Realty	Superior Court for the District of Columbia, Civil Division, Washington, D.C.	Civil Action No. 03-0004555
	Deposition	Susan Strickland vs. Clayton Homes, Inc.	Court of Common Pleas for the Ninth Judicial Court	2004-CP-08-37
	Deposition	David Deptula and Libia Deptula v. Aspen Homes, Inc., et al.	Circuit Court of the Fifteenth Judicial Circuit in and for Palm Beach County, Florida	CA 02-14421 AH
2007	Deposition	Richard C. Smith and Vickie Smith vs Sal Chemical Co., Inc., and Chemical Solvents, Inc., et al	Circuit Court of Brooke County, West Virginia	CA No. 05-C-211

**DEPOSITION and TRIAL TESTIMONY OF HUNG CHEUNG, M.D., MPH., FACOEM**

YEAR	TYPE	CASE	COURT	CASE NUMBER
	<b>Deposition</b>	Turgut Bayrankul, Individually and as Guardian Ad Litem of Brandon H. Bayrankul, a Minor Child, Bonnie Bayramkul v. California Traditions, Inc., a California Corporation d/b/s Silverstar Development, MASCO Corporation, a Delaware Corp., MASCO CONTRACTOR SERVICES; GALE BUILDING PRODUCTS; WISE CONSULTING AND TRAINING, a Nevada Corporation; DIAL ONE DOES 1 through 100; DOE SUBCONTRACTORS 101 through 150; DOE REMEDIATION CONTRACTORS 151 through 250, inclusive, ROE CORPORATIONS 1 through 250, inclusive	In the Second Judicial Circuit Court of the State of Nevada in and For the District of Washoe, Florida	CV06-01564 Dept. No 10
2008	<b>Deposition</b>	Milan A. Racic vs Chana, LLC et al.	In the Superior Court of the District of Columbia	Civil Action No. 06-7173
	<b>Deposition</b>	Kjell Norlander et al vs James C & Jean W Ku	In the Circuit Court for Montgomery County, Maryland	CASE NO.: 286296-V
2009	<b>Deposition</b>	Roma O. Kurtz individually and as a representative of Everell F. Kurtz, deceased v. Allied Insulation Supply Co. Inc. et. Al.	Circuit Court, Milwaukee County, State of Wisconsin	CASE No. 06 CV 010559; Classification code: 30108
	<b>Trial</b>	Kjell Norlander et al vs James C & Jean W Ku	In the Circuit Court for Montgomery County, Maryland	CASE NO.: 286296-V

**DEPOSITION and TRIAL TESTIMONY OF HUNG CHEUNG, M.D., MPH., FACOEM**

YEAR	TYPE	CASE	COURT	CASE NUMBER
2010	Trial	Alan Reighard, Suzy Reighard, Aidan Reighard vs Steven Yates Defendant, Cross Complainant vs E. Marshall Plastering , Inc Cross Defendant	Third Judicial District Court, In and For Summit County, State of Utah	Case No: 070500061
	Deposition	Mark A. Stockstill, Julia Stockstill v. State Farm Fire and Casualty Company	Circuit Court for Anne Arundel County, Maryland	Case No. 02-c-090-142912